Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 1/8/13 at 9:00 a.m.

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found at: http://www.swr.noaa.gov/ocap/doss.htm.

DWR: Edmund Yu, Dan Yamanaka, Andy Chu, Mike Ford, James Gleim
FWS: Leigh Bartoo, Roger Guinee, Craig Anderson
NMFS: Barb Byrne, Jeff Stuart, Barbara Rocco, Bruce Oppenheim, Garwin Yip
Reclamation: Russ Yaworsky, Josh Israel
DFW: Bob Fujimura, Robert Vincik, Jason Roberts, Krystal Acierto
EPA: Erin Foresman
SWRCB, USGS: not present

Agenda
1. Fish monitoring
2. Current operations
3. RPA Action IV.3 review for final language clarification

Fish Monitoring: The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. See also: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

Location	Chipps Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	Beach Seines
Sample Date	12/31/12, 1/2, 1/4	12/21/12, 1/2, 1/4	12/31/12, 1/2, 1/4	12/31/12, 1/2–1/4
Total Catch	**327**	**5**	**0**	**407**
FR		4		364
WR	2			9
SR				32
LFR	1			
Ad-Clipped Chinook	5	1		2
DS	2 (68 & 74 mm)			
Splittail	5			
Longfin	310			
SH (ad-clip)				
SH (wild)				

W. Temp. (avg. °F)	45.9	45.5	45.9	45.1
Flows (avg. cfs)				
Turbidity (avg. NTU)	62.9	62.8	35.4	42.6
WR/LFR Avg. CPUE				
FR/SR Avg. CPUE				

Key: FR = Fall run; LFR = Late-fall run; SR = Spring run; WR = Winter run; SH = Steelhead; DS = Delta smelt; LFS = Longfin smelt; CPUE = catch per unit of effort; N/A = not available

Fish Monitoring: For clarification, the spring-run Chinook observed in the beach seines are young-of-the-year and range from 40 to 53 mm; therefore, they are not counted toward any trigger. Spring-run juveniles are not considered "older juveniles" unless they are large enough to be yearlings (typically >100 mm, but none are larger than the winter-run size classification right now).

Fish Rescue Operations: Three adult ad-clipped salmon and two smolts were rescued on Friday, 1/4/13, behind Tisdale Weir. The adult salmon were tagged and released into the Sacramento River. No sturgeon were found. DFW continues to check Fremont Weir for stranded sturgeon.

Fish Salvage[1]: Fujimura (DFW) reported on fish salvage from December 31 through January 6 (see also the graph and table below prepared by Fujimura on 1/7/13). Four non-clipped, winter-run-size salmon were salvaged on 1/2/13 for a loss density of 0.3 fish/TAF. Fewer ad-clipped juveniles were salvaged last week compared with the previous week—26 vs. 33, respectively. All fish ranged from 134 to 211 mm. No steelhead were salvaged last week. One white sturgeon expanded to four was salvaged at SWP on 1/1/13 (427 mm). No green sturgeon were salvaged.

The question was raised about whether a protocol for genetic sampling on sturgeon has been in place at the SWP. DWR is trying to eventually arrange genetic sampling but a program is not currently in place. If juveniles are 200 mm or less, they are retained until identification can be confirmed by biologists from DWR. DFW can provide backup biologists if necessary. Gleim (DWR) mentioned that DWR is in process of obtaining genetic sampling permits not currently in place for all the various listed species to allow it to take tissue samples for genetic identification.

[1]Salvage is the estimated number of fish collected by a fish salvage facility during a specified time period. Daily salvage is the most commonly used metric and represents the summation of shorter salvage estimates. Detailed descriptions of how salvage and Chinook salmon loss are calculated are described in "Chinook Salmon Loss Estimation for Skinner Delta Fish Protective Facility and Tracy Fish Collection Facility" and can be obtained in the "Salmon Loss Estimation" folder at: ftp://ftp.delta.dfg.ca.gov/salvage/

Complied by Bob Fujimura on January 7, 2013

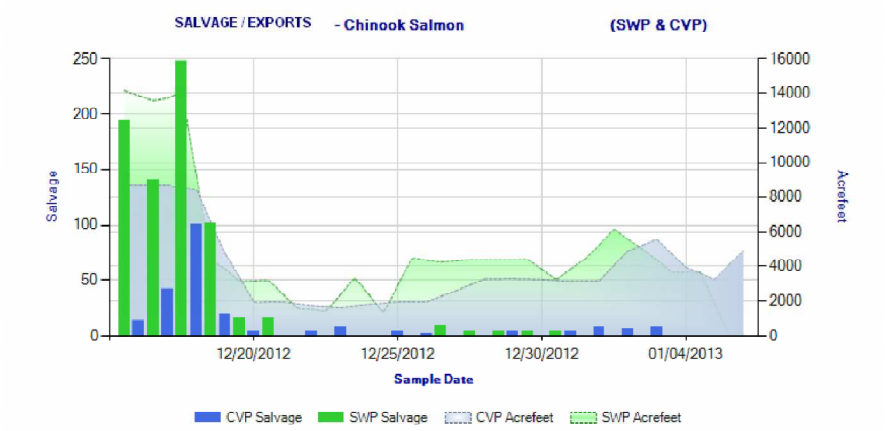


Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during December 16 through January 6, 2013. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx.

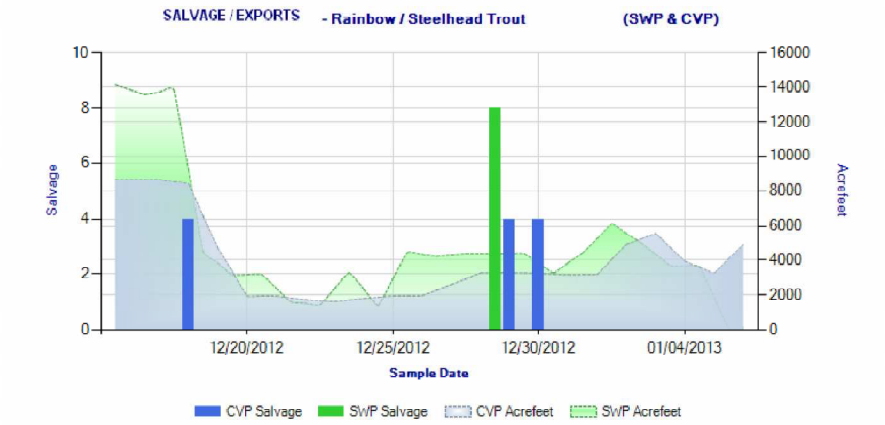


Figure 2. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during December 16 through January 6, 2013. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx

DOSS Weekly Salvage Update
Reporting Period: Dec 31, 2012 - January 6, 2013
Prepared by Bob Fujimura on January 7, 2013
Preliminary Results -Subject to Revision

Criteria	31-Dec	1-Jan	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan	Trend
Loss Densities								
Wild older juvenile CS	0	0	0.3	0	0	0	0	
Wild steelhead	0	0	0	0	0	0	0	
Exports								
SWP daily export	3,265	4,424	6,103	5,011	3,677	3,611	118	→
CVP daily export	3,146	3,180	4,917	5,560	3,936	3,247	4,909	↗

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adipose fin present
Loss =estimated number of fish lost at the CVP and SWP Delta export facilities based on estimated salvage (see below)

Chinook Salmon Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities
Race determined by size at date of capture; hatchery = adipose fin missing;

		Weekly Total			Season Total	
Category		Salvage	Loss	Trend	Salvage	Loss
Wild						
	Winter Run	4	3	↗	74	242
	Spring Run	0	0	→	0	0
	Late Fall Run	0	0	→	85	277
	Fall Run	0	0	→	19	52
	Unclassified	0	0	→	8	5
	Total	**4**	**3**		**186**	**576**
Hatchery						
	Winter Run	7	6	↗	68	242
	Spring Run	0	0	→	0	0
	Late Fall Run	11	24	↘	767	2,850
	Fall Run	8	8	↗	415	1,522
	Unclassified	0	0	→	0	0
	Total	**26**	**38**		**1,250**	**4,614**

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time

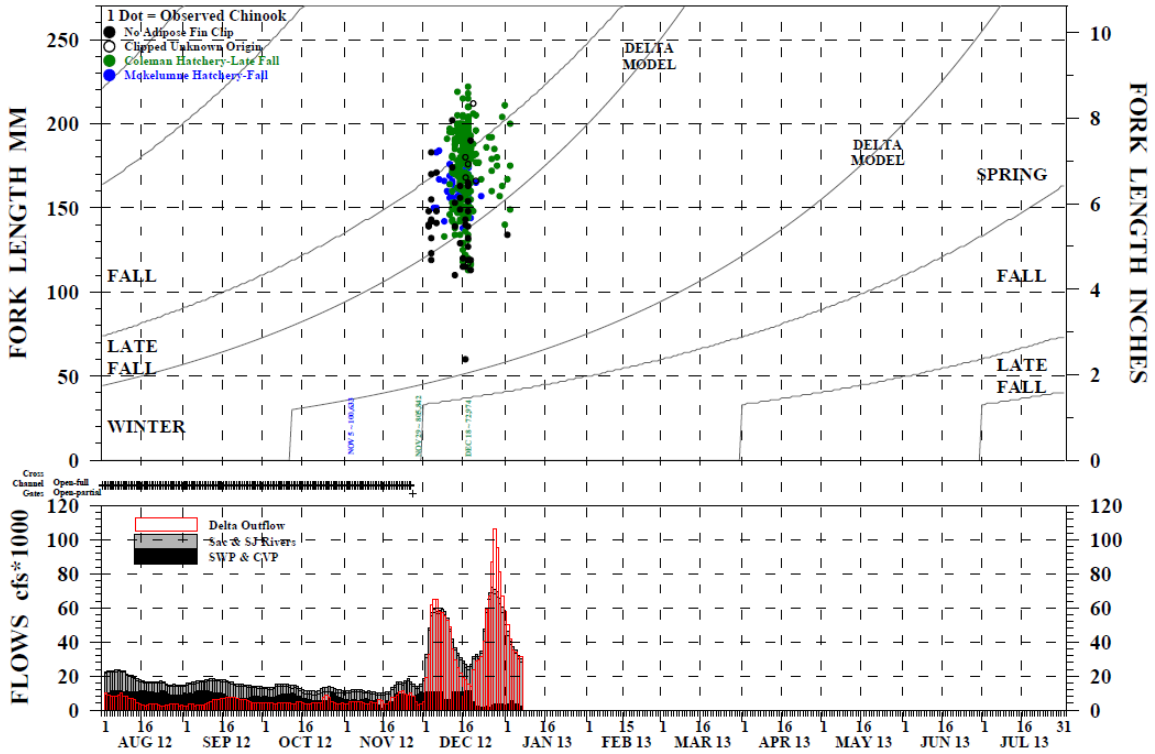
Steelhead Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities

	Weekly Total			Season Total	
Category	Salvage	Loss	Trend	Salvage	Loss
Wild	0	0	↘	29	78
Hatchery	0	0	→	0	0
Total	**0**	**0**		**29**	**78**

State Water Project loss = salvage x 4.33; Central Valley Project loss = salvage x 0.68

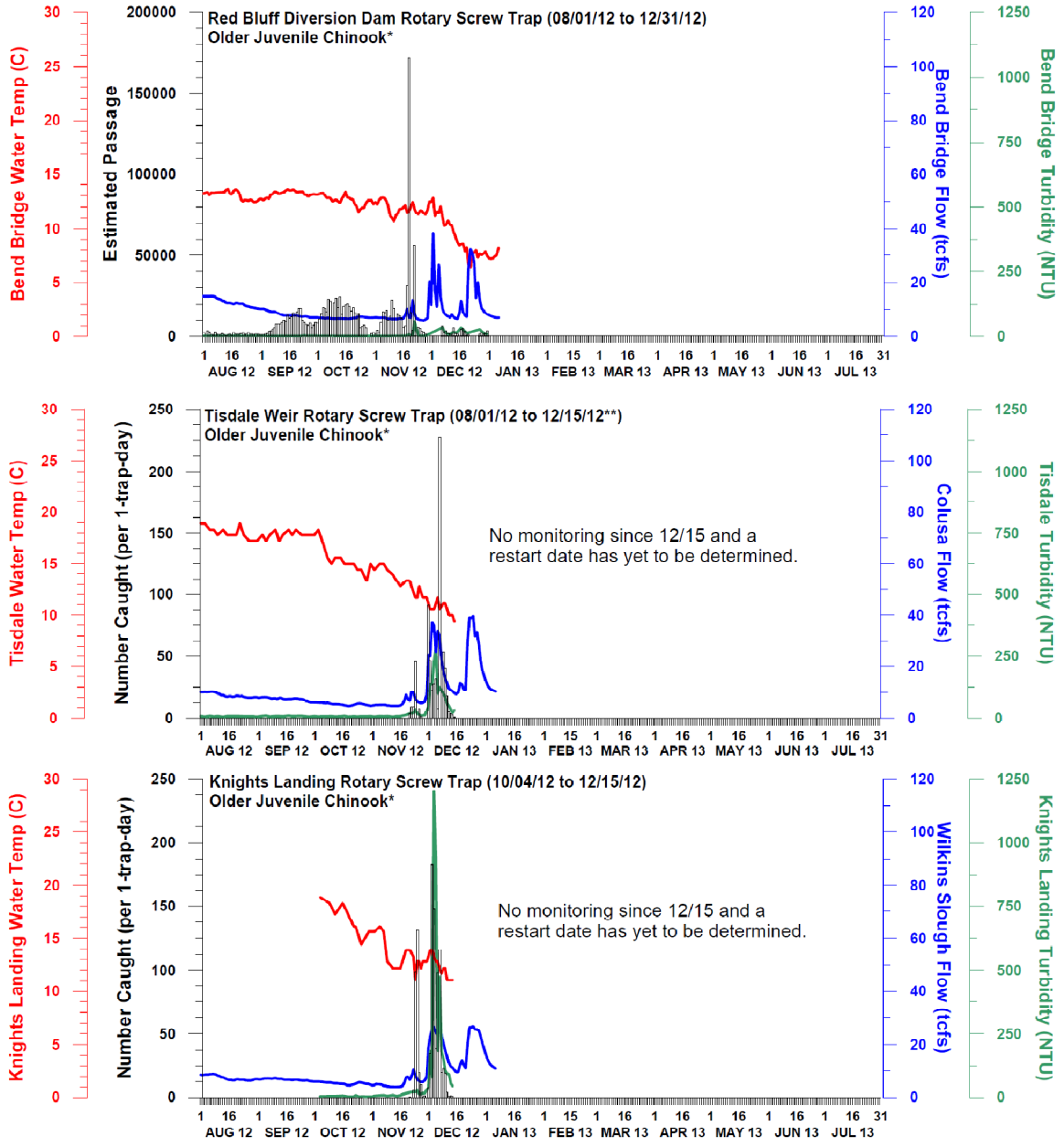
NOTE: Below are graphs provided by DWR through 1/7/13 for Chinook salmon salvaged at the Delta fish facilities and for older juvenile Chinook salmon and steelhead observed in the Sacramento and San Joaquin rivers. For additional graphs, please visit the DWR website at: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 08/01/2012 THROUGH 01/06/2013



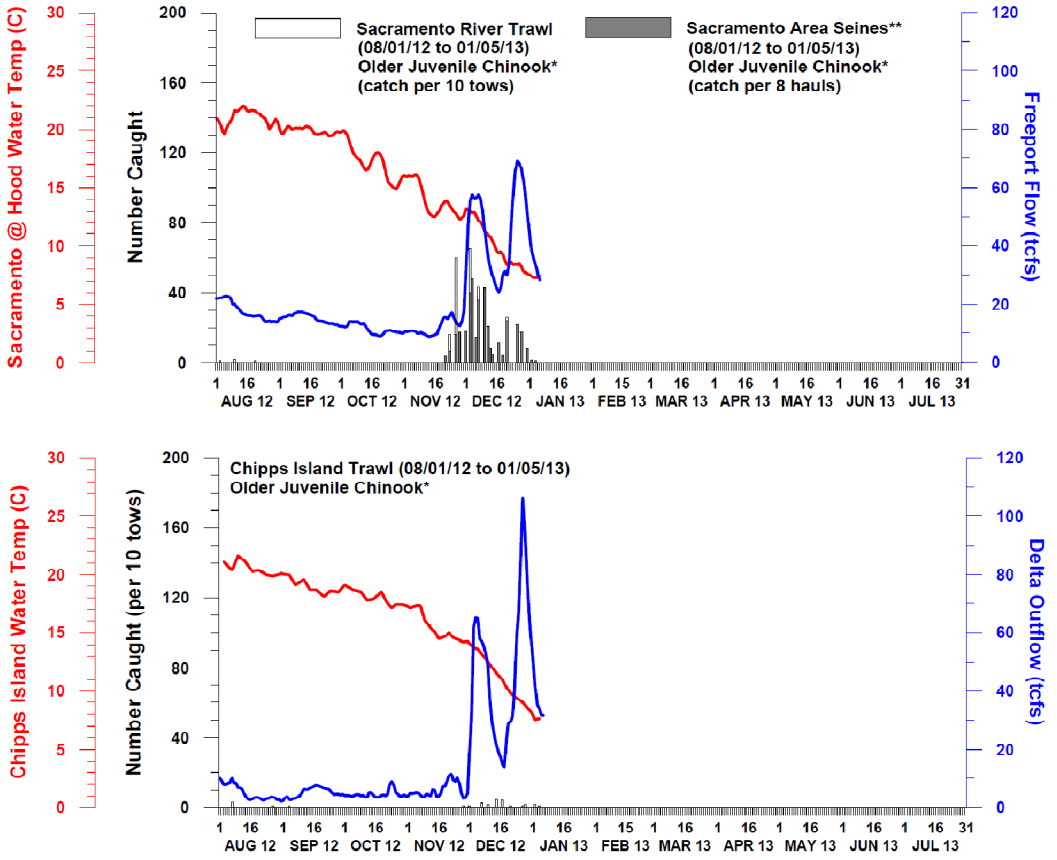
DWR-DES 07 JAN 2013
Preliminary data from DFG; subject to revision.
*Chinook outside of the length-at-date criteria (Delta model) are not reported.

NUMBER OF OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



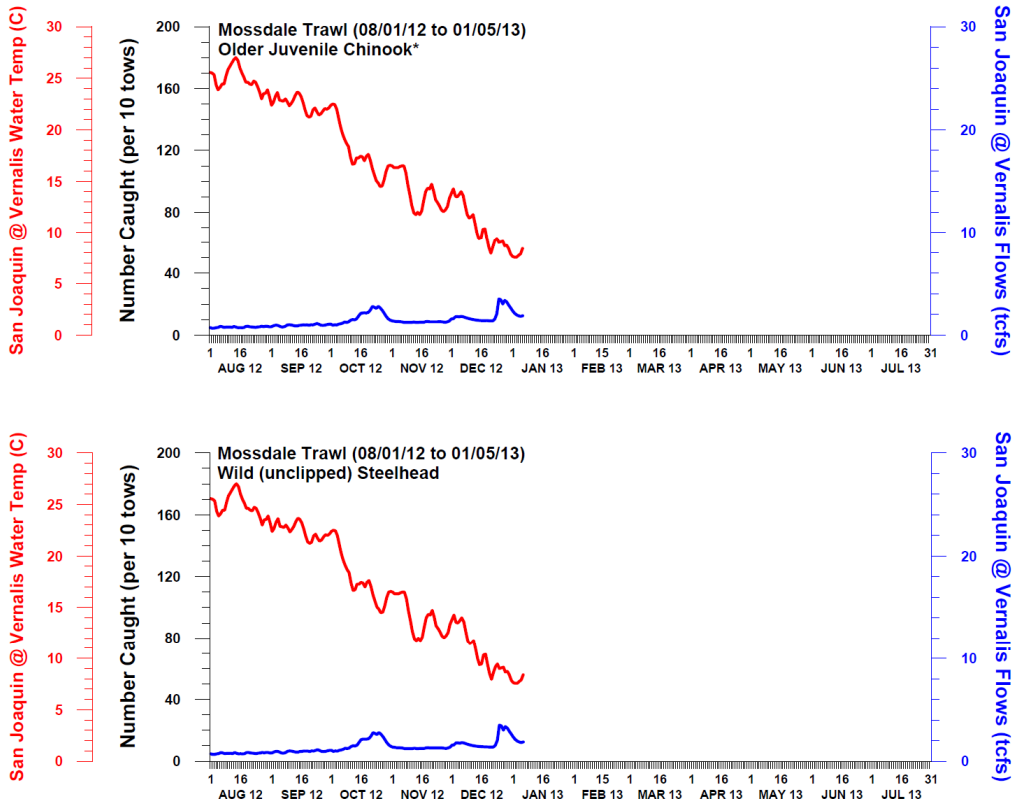
DWR-DES 07 JAN 2013
Preliminary data from DFG, FWS, and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).
** Tisdale Weir: One older juvenile caught on 9/14 and 43 older juveniles caught on 11/25. However, CPUE was not calculated due to problems with the cone clickers. As a result, data are not presented on the graph.

NUMBER OF OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER & CHIPPS ISLAND



DWR-DES 07 JAN 2013
Preliminary data from FWS and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).
**Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

NUMBER OF OLDER JUVENILE CHINOOK AND STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER



DWR-DES 07 JAN 2013
Preliminary data from FWS and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).

Spring-Run Surrogate Data: The table below providing data on the loss of surrogates at the project facilities was provided by Edmund Yu (DWR). All data are preliminary.

HATCHERY (ADIPOSE-FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2012/2013

Release Date	CWT Race	Hatchery	Release Site	Release Type	Confirmed Loss	Number Released[1]	Total Entering Delta	% Loss[2]	First Concern Level	Second Concern Level	Date of First Loss	Date of Last Loss
11/5/2012	F	Mokelumne River Hatchery	Mokelumne River	**	554.28	100,633	n/a	0.551	n/a	n/a	12/5/2012	12/23/2012
11/29/2012	LF	Coleman NFH	Battle Creek	Production	3913.02	805,842	n/a	0.486	n/a	n/a	12/9/2012	1/2/2013
12/18/2012	LF	Coleman NFH	Battle Creek	Spring Surrogate	30.89	72,974	n/a	0.042	0.5%	1.0%	12/31/2012	1/3/2013

Facility	Unknown CWT Loss[3]	Unread CWT Loss[4]	Unknown Hatchery Loss[5]
SWP	36.71	0.00	73.10
CVP	5.20	0.00	0.00
TOTAL	**41.91**	**0.00**	**73.10**

SWP CWTs read from 10/1/2012 through 1/6/2013.
CVP CWTs read from 10/1/2012 through 1/6/2013.
[1]Number released with the adipose fin clipped and a CWT.
[2]LF & F % Loss = (Confirmed Loss/Number Released)*100; W % Loss = (Confirmed Loss/Total Entering Delta)*100
[3]Adipose fin clipped Chinook was observed during salvage, but tag code could not be determined (e.g., damaged tag, lost tag, no tag, or Chinook released).
[4]Adipose fin clipped Chinook was collected during salvage and has not been processed yet.
[5]CWT has been read, but hatchery release information not yet available.
**** Information not yet available.**

DWR-DES Revised 1/7/2013
Preliminary data from DFG, DWR, FWS, and Reclamation; subject to revision.

All coded wire tags (CWTs) have been processed through 1/6/13. Spring-run surrogates were observed between 12/31/12 and 1/3/13 for a confirmed loss of 30.89. NOTE: There was a minor change to the previous data reported for a Chinook salmon observed on 12/18/12 at the SWP fish facility. The Chinook salmon was reported as ad-clipped and was actually not ad-clipped, which subsequently changed the loss and loss-density data. That data are as follows: the non-clipped older juvenile Chinook daily loss was changed from 123.02 to 141.43; the non-clipped older juvenile Chinook loss density was changed from 5.54 to 6.36 fish/TAF.

The second release of spring-run surrogates from Coleman National Fish Hatchery (Coleman) should go into the water today (1/8/13) at Battle Creek. NMFS discussed a release date earlier than 1/17/13, which was originally planned and Coleman agreed. It will most likely take the fish a bit longer than earlier releases to get down to the Delta given the current river flows.

Operations (1/8/13)

SWP		**CVP**	
Exports (cfs)			
Clifton Court Forebay	4,000 (tomorrow will be 4,500 and 3,500 to 4,500 by Friday)	Jones Pumping Plant	0 as of this morning for maintenance. Will most likely remain at 0 until Friday evening.
Reservoir Releases (cfs)			
Feather - Oroville	1,750	Nimbus	4,000 (recently reduced)
		Sacramento - Keswick	4,500
		Stanislaus - Goodwin	275
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	451	San Luis (CVP)	683 (71)
Oroville	2,558	Shasta	3,375
New Melones	1,606	Folsom	574 (encroached)

Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	27,000 (receding)
Outflow Index (cfs)	30,200	San Joaquin River (cfs) at Vernalis	2,000
Total Delta Inflow (cfs)	30,300	OMR (daily) (cfs)	-3,200
Water Temperature (°F)		OMR 5 day (cfs)	-2,100
X2 (km)	67	OMR 14 day (cfs)	-1,100
E/I (%)	8		

DOSS discussed whether to report the data for operations according to what was discussed during the meetings or from the DWR daily summary provided just before the DOSS meetings. The DWR data tends to be an average or "snapshot" of data and not real-time information. Given this, DOSS members agreed that they preferred to report the information in the above table according to what is reported on the DOSS call to not only capture real-time information but also to capture information on recent or upcoming changes to operations.

Smelt Working Group (SWG): FWS made a final determination last Friday (1/4/13) to target OMR flows of -3,500 cfs, which was to be implemented over the weekend, and an emergency WOMT call was held late Friday afternoon to discuss operations. SWG met Monday, 1/7/13, and recommended that the current OMR level, -3,500 cfs (14-day average) with a corresponding 25% of that on a 5-day average, would be protective of delta smelt The group discussed its concern with the level of fish already salvaged, which has already exceeded one-third of the annual take level. A preliminary salvage estimate of delta smelt showed that several were caught at the CVP yesterday, which might push the totals from 90 to >100 salvaged YTD.

Language Clarification for RPA Action IV.3: Byrne (NMFS) provided a draft of the preliminary language (see Appendix A) for RPA Action IV.3 and to DOSS this morning and requested that any edits been sent to her by COB Friday (1/11/12). NMFS will send out a final version by Monday. DOSS can discuss and hopefully approve the revised language next Tuesday. NMFS is not planning to make any formal revisions to the RPA this year, so this revised language will be a guide for now; NMFS will keep and use the text for the next formal round of revisions.

RPA Action IV.2.3: DOSS discussed the NMFS RPA requirement that operations are now no more negative than -5,000 cfs. The smelt guidance of no more negative than -3,500 cfs supersedes this level of operation. There were at least 14 days of -2,000 cfs before the change to -3,500 cfs on 1/4/13 and the operators have made a good-faith effort to try to achieve the daily average even though it might not be 14 days long. DWR tries to target, using the Hutton index method, at least to the daily average. Going from less to more negative is difficult. Salvage at CVP will be zero this week because pumping at Jones Pumping Plant is shutting down for maintenance through Friday (1/11/13). The Tracy Fish Salvage Facility will not operate when there are no exports and there won't be enough power at the fish facility to do much other than the essential operations. Although RPA Action IV.2.3 is in effect, no density-based triggers have been tripped; therefore, no advice to NMFS and WOMT is needed. The OMR of -3,500 cfs on the 14-day average is controlling as of last Saturday.

DWR also mentioned that it is tracking whether the actions pertain to delta smelt or salmonids. DWR believes this will be helpful when informing the projects of any constraints and why. It relies on the DOSS notes regarding the date it considers as "notification" for guidelines on which date is considered the correct time to commence with the action.

DOSS Advice to WOMT and NMFS: No advice.

Next Meeting: The next DOSS conference call meeting is scheduled for 1/15/13 at 9:00 a.m.

Appendix A. RPA Action IV.3 Language Clarification

Action IV.3 Reduce Likelihood of Entrainment or Salvage at the Export Facilities

Objective: Reduce losses of winter-run, spring-run, CV steelhead, and Southern DPS of green sturgeon by reducing exports when large numbers of juvenile Chinook salmon are migrating into the upper Delta region, at risk of entrainment into the central and south Delta and then to the export pumps in the following weeks.

Action: From November 1 through April 30, operations of the Tracy and Skinner Fish Collection Facilities shall be modified according to monitoring data from upstream of the Delta. In conjunction with the two alerts for closure of the DCC (Action IV.1.1), the Third Alert shall be used to signal that export operations may need to be altered in the near future due to large numbers of juvenile Chinook salmon migrating into the upper Delta region, increasing their risk of entrainment into the central and south Delta and then to the export pumps.

Third Alert: The catch index is greater than 10 fish captured per day from November 1 to February 28, or greater than 15 fish captured per day from March 1 to April 30, from either the Knights Landing catch index or the Sacramento catch index.

Response: From November 1 through December 31, when ~~salvage~~ loss numbers reach the action triggers, exports shall be reduced as follows:

Date	Action Triggers	Action Responses[2]
November 1 – December 31	Daily SWP/CVP older juvenile loss density greater than 8 fish/thousand acre feet (taf), or daily loss is greater than 95 fish per day, or Coleman National Fish Hatchery coded wire tagged late fall-run Chinook salmon (CNFH CWT LFR) surrogates or Livingston Stone National Fish Hatchery coded wire tagged winter-run (LSNFH CWT WNT) cumulative loss is greater than 0.5% for each release group[3].	Reduce combined exports to ~~a combined~~no more than 6,000 cfs for 3 consecutive days ~~or until CVP/SWP daily density is less than 8 fish/taf~~. Export reductions are required when any one of the four criteria is met.

[2] The water projects may continue to operate to the old limit for up to two additional days.
[3] The cumulative loss for each CHFH CWR LFR or LSNFH CWT WNT release group can only trigger an action once, therefore, can only have one action response per release group.

	Daily SWP/CVP older juvenile loss density greater than 15 fish/taf, or daily loss is greater 120 fish per day~~, or CNFH CWT LFR or LSNFH CWT WNT cumulative loss greater than 0.5%~~.	Reduce combined exports to ~~a combined~~no more than 4,000 cfs for 3 consecutive days~~ or until CVP/SWP daily density is less than 8 fish/taf~~. Export reductions are required when ~~any one~~either of the two~~four~~ criteria is met.

Implementation procedures: A new action response is not required if the same, or a lower, trigger is exceeded on the first or second day of an action response, or during the allowed period between the trigger exceedance and the initiation of the action response. However, if the daily SWP/CVP older juvenile loss density, or the daily loss, exceeds any of the action triggers on the third day of an action response, then a new action is triggered, and a new 3-day action response is required[4].

During the implementation of the action response for the lower, first stage trigger, or during the allowed period between the trigger exceedance and the initiation of the action response, exceedance of the more restrictive trigger at any time requires a new three-day action response of combined exports no more than 4,000 cfs. In this scenario, days at which exports are no more than 4,000 cfs may be counted (if there is some overlap[5]) as part of the 3-day action response required by the first stage trigger.

From January 1 through April 30, implement Action IV.2.3 which include restrictions on OMR flows rather than set levels of combined export pumping. Alert triggers will remain in effect to notify the operators of the CVP and SWP that large numbers of juvenile Chinook salmon are entering the Delta system.

Rationale: As explained previously, juvenile salmonids and green sturgeon have a lower chance of survival to the ocean if they are diverted from their migratory routes on the main Sacramento and San Joaquin Rivers into the central and south Delta. Export pumping changes flow patterns and increases residence time of these diverted fish in the central Delta, which increases the risk of mortality from predation, water diversions, poor water quality, and contaminant exposure, as well as the likelihood of entrainment at the pumps. When more fish are present, more fish are at risk of diversion and losses will be higher. The Third Alert is important for real-time operation of the export facilities because the collection and dissemination of field data to the resource agencies and coordination of response actions may take several days. This action is designed to work in concert with the OMR action in IV.2.3.

[4] The Projects have stated that as a result of power and other scheduling limitations, they would not be able to continue an action response, therefore, exports will likely increase after the completion of the initial action response and prior to the initiation of the next action response.

[5] Suppose, for example, that the higher, second stage trigger is exceeded on the day following the exceedance of the lower, first stage trigger (during the allowed period between the initial trigger exceedance and the initiation of the action response). In this case, assuming similar scheduling in implementation of the action responses, the second and third days of the action response for the first-stage trigger will overlap with the first and second days of the action response for the second-stage trigger, for a combined action response sequence of combined exports of 6,000 cfs, 4,000 cfs, 4,000 cfs, and 4,000 cfs.